

FIG. 1

1	Saline Control
2	PGF-2 $\alpha$ - 1 hr 10 mM sperm.
3	PGF-2 $\alpha$ - 1 hr 10 mM sperm. + 5 hr 1 mM sperm.

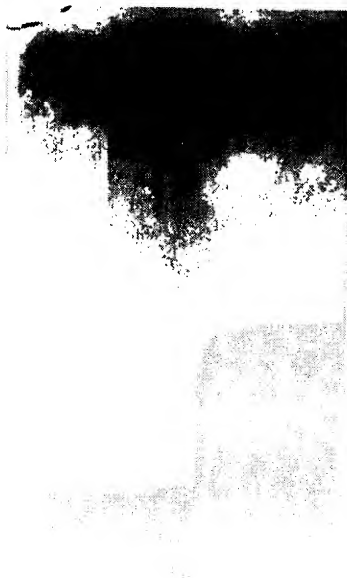
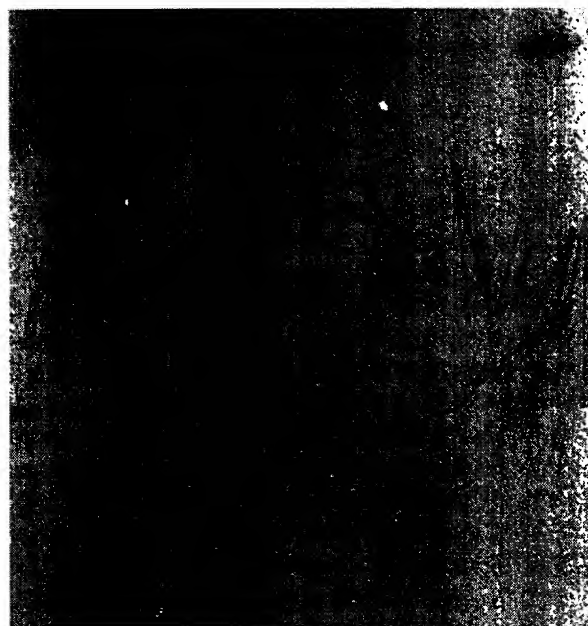


FIG. 2

1	Control
2	Control + Spermidine
3	PGF-2 $\alpha$ (1 h 35 m)
4	PGF-2 $\alpha$ (1 h 35 m) + Spermidine
5	PGF-2 $\alpha$ (1 h 35 m) + Spermidine
6	PGF-2 $\alpha$ (3 h 45 m) + Spermidine
7	PGF-2 $\alpha$ (3 h 45 m) + Spermidine



TCGAAGACCGGTAAGCACGGCCATGCCAAGGTCCATCTGGTTGGTATTGATATTTTTACTGGGAAGAAATAT  
S K T G K H G H A K V H L V G I D I F T G K K Y  
GAAGATATCTGCCCCGTCGACTCATAACATGGATGTCCCCAACATCAAAAGGAATGATTTCCAGCTGATTGGC  
E D I C P S T H N M D V P N I K R N D F Q L I G  
ATCCAGGATGGGTACCTATCCCTGCTCCAGGACAGTGGGGAGGTACGAGAGGACCTTCGTCTGCCTGAGGGA  
I Q D G Y L S L L Q D S G E V R E D L R L P E G  
GACCTTGGCAAGGAGATTGAGCAGAAGTATGACTGTGGAGAAGAGATCCTGATCACAGTGCTGTCCGCCATG  
D L G K E I E Q K Y D C G E E I L I T V L S A M  
ACAGAGGAGGCAGCTGTTGCAATCAAGGCCATGGCAAAATAACTGGCTTCCAGGGTGGCGGTGGTGGCAGCA  
T E E A A V A I K A M A K  
GTGATCCATGAGCCTACAGAGGCCCTCCCCAGCTCTGGCTGGGCCCTTGGCTGGACTCCTATCCAATTTA  
TTTGACGTTTTATTTTGGTTTTCTCACCCTTCAAAGTGTGCGGGAGACCCTGCCCTTACCTAGCTCCCT  
TGGCCAGGCATGAGGGAGCCATGGCCTTGGTGAAGCTACCTGCCTCTTCTCTCGCAGCCCTGATGGGGGAAA  
GGGAGTGGGTACTGCCTGTGGTTTAGGTTCCCTCTCCCTTTTTCTTTTAAATCAATTTGGAATCAGAAAG  
CTGTGGATTCTGGCAAATGGTCTTGTGTCCTTTATCCCACTCAAACCCATCTGGTCCCCTGTTCTCCATAGT  
CCTTCACCCCCAAGCACCCTGACAGACTGGGGACCAGCCCCCTTCCCTGCCTGTGTCTTCCCAAACCCC  
TCTATAGGGGTGACAAGAAGAGGAGGGGGGAGGGGACACGATCCCTCCTCAGGCATCTGGGAAGGCCTTGC  
CCCCATGGGCTTTACCCTTTCCTGTGGGCTTCTCCCTGACACATTGTTAAAAATCAAACCTGAATAAAAC  
TACAAGTTTAAATATGAAAAAAAAAAAAAAAAAAAAA  
(972 NT, 109 aa)

Figure 3

(488 NT, 151 aa)

Figure 4



	10	20	30	40	50	60
rat	ATGGCAGATGATTTGGACTTCGAGACAGGAGATGCAGGGGCCCTCAGCCACCTTCCCAATG					
human	ATGGCAGATGACTTGGACTTCGAGACAGGAGATGCAGGGGCCCTCAGCCACCTTCCCAATG					
	10	20	30	40	50	60
	70	80	90	100	110	120
rat	CAGTGCTCAGCATTACGTAAGAATGGTTTTGTGGTGCTCAAGGGCCCGGCCATGTAAGATC					
human	CAGTGCTCAGCATTACGTAAGAATGGCTTTGTGGTGCTCAAAGGGCCCGGCCATGTAAGATC					
	70	80	90	100	110	120
	130	140	150	160	170	180
rat	GTCGAGATGTCTACTTCGAAGACTGGCAAGCATGGCCATGCCAAGGTCCATCTGGTTGGT					
human	GTCGAGATGTCTACTTCGAAGACTGGCAAGCACGGCCACGCCAAGGTCCATCTGGTTGGT					
	130	140	150	160	170	180
	190	200	210	220	230	240
rat	ATTGATATTTTTACTGGGAAGAAATATGAAGATATCTGCCGTCGACTCATAACATGGAT					
human	ATTGACATCTTTACTGGGAAGAAATATGAAGATATCTGCCGTCAACTCATAATATGGAT					
	190	200	210	220	230	240
	250	260	270	280	290	300
rat	GTCCCCAACATCAAAGGAATGATTCCAGCTGATTGGCATCCAGGATGGGTACCTATCC					
human	GTCCCCAACATCAAAGGAATGACTTCCAGCTGATTGGCATCCAGGATGGGTACCTATCA					
	250	260	270	280	290	300
	310	320	330	340	350	360
rat	CTGCTCCAGGACAGTGGGGAGGTACGAGAGGACCTTCGTCTGCCTGAGGGAGACCTTGGC					
human	CTGCTCCAGGACAGCGGGGAGGTACGAGAGGACCTTCGTCTCCCTGAGGGAGACCTTGGC					
	310	320	330	340	350	360
	370	380	390	400	410	420
rat	AAGGAGATTGAGCAGAAGTATGACTGTGGAGAAGAGATCCTGATCACAGTGCTGTCCGCC					
human	AAGGAGATTGAGCAGAAGTACGACTGTGGAGAAGAGATCCTGATCACGGTGCTGTCTGCC					
	370	380	390	400	410	420
	430	440	450	460		
rat	ATGACAGAGGAGGCAGCTGTTGCAATCAAGGCCATGGCAAAA					
human	ATGACAGAGGAGGCAGCTGTTGCAATCAAGGCCATGGCAAAA					
	430	440	450	460		

Figure 6

rat vs. human(NM\_020390) 72.5% identity (coding)

```

      10      20      30      40      50      60
rat   ATGGCAGATGATTGGACTTCGAGACAGGAGATGCAGGGGCCTCAGCCACCTTCCCAATG
      :::::  ::  ::  ::  ::  ::  ::  ::  ::  ::  ::  ::  ::  ::  ::  ::
human ATGGCAGACGAAATTGATTTCACTACTGGAGATGCCGGGGCTTCCAGCACTTACCCTATG
      10      20      30      40      50      60

      70      80      90     100     110     120
rat   CAGTGCTCAGCATTACGTAAGAATGGTTTTGTGGTGCTCAAGGGCCGGCCATGTAAGATC
      :::::  ::  ::  ::  ::  ::  ::  ::  ::  ::  ::  ::  ::  ::  ::  ::
human CAGTGCTCGGCCTTGCGCAAAAACGGCTTCGTGGTGCTCAAAGGACGACCATGCAAAATA
      70      80      90     100     110     120

      130     140     150     160     170     180
rat   GTCGAGATGTCTACTTCGAAGACTGGCAAGCATGGCCATGCCAAGGTCCATCTGGTTGGT
      ::  :::::  ::::  ::  ::::  :::::  :::::  :::::  ::  ::  :::::
human GTGGAGATGTCAACTTCCAAAACGGAAAGCATGGTCATGCCAAGGTTACCTTGTGTTGGA
      130     140     150     160     170     180

      190     200     210     220     230     240
rat   ATTGATATTTTTACTGGGAAGAAATATGAAGATATCTGCCCCTCGACTCATAACATGGAT
      :::::  ::  ::  ::  :::::  :::::  ::  ::  ::  ::  ::  ::  ::  ::
human ATTGATATTTTCACGGGCAAAAAATATGAAGATATTTGTCCTTCTACTCACAACATGGAT
      190     200     210     220     230     240

      250     260     270     280     290     300
rat   GTCCCCAACATCAAAAGGAATGATTTCCAGCTGATTGGCATCCAGGATGGGTACCTATCC
      ::  ::  ::  ::  ::  ::  ::  ::  ::  ::  ::  ::  ::  ::  ::  ::
human GTTCCAAATATTAAGAGAAATGATTATCAACTGATATGCATTCAAGATGGTTACCTTTCC
      250     260     270     280     290     300

      310     320     330     340     350     360
rat   CTGCTCCAGGACAGTGGGGAGGTACGAGAGGACCTTCGTCTGCCTGAGGGAGACCTTGGC
      ::::  ::  ::  ::  ::  ::  ::  ::  ::  ::  ::  ::  ::  ::  ::  ::
human CTGCTGACAGAACTGGTGAAGTTCGTGAGGATCTTAAACTGCCAGAAGGTGAACTAGGC
      310     320     330     340     350     360

      370     380     390     400     410     420
rat   AAGGAGATTGAGCAGAAGTATGACTGTGGAGAAGAGATCCTGATCACAGTGCTGTCCGCC
      ::  ::  ::  ::  ::  ::  ::  ::  ::  ::  ::  ::  ::  ::  ::  ::
human AAAGAAATAGAGGGAAAATACAATGCAGGTGAAGATGTACAGGTGTCTGTGCATGTGTGCA
      370     380     390     400     410     420

      430     440     450     460
rat   ATGACAGAGGAGGCAGCTGTTGCAATCAAGGCCATGGCAAAA
      ::::  ::  ::  ::::  ::  ::  ::  ::  ::  ::  ::
human ATGAGTGAAGAATATGCTGTAGCCATAAAACCCT--GCAAAAT
      430     440     450     460
```

Figure 7

rat vs. mouse (BC003889) 98.3% identity (coding)

	10	20	30	40	50	60
rat	ATGGCAGATGATTTGGACTTCGAGACAGGAGATGCAGGGGCCTCAGCCACCTTCCCAATG					
	::					
mouse	ATGGCAGATGATTTGGACTTCGAGACAGGAGATGCAGGGGCCTCAGCCACCTTCCCAATG					
	10	20	30	40	50	60
	70	80	90	100	110	120
rat	CAGTGCTCAGCATTACGTAAGAATGGTTTTGTGGTGCTCAAGGGCCGGCCATGTAAGATC					
	::					
mouse	CAGTGCTCAGCATTACGTAAGAATGGTTTTGTGGTGCTCAAAGGCCGGCCATGTAAGATC					
	70	80	90	100	110	120
	130	140	150	160	170	180
rat	GTCGAGATGTCTACTTCGAAGACTGGCAAGCATGGCCATGCCAAGGTCCATCTGGTTGGT					
	::					
mouse	GTCGAGATGTCTACTTCGAAGACTGGCAAGCATGGCCATGCCAAGGTCCATCTGGTTGGC					
	130	140	150	160	170	180
	190	200	210	220	230	240
rat	ATTGATATTTTTACTGGGAAGAAATATGAAGATATCTGCCCGTCGACTCATAACATGGAT					
	::::: ::					
mouse	ATTGACATTTTTACTGGGAAGAAATATGAAGATATCTGCCCGTCGACTCATAATATGGAT					
	190	200	210	220	230	240
	250	260	270	280	290	300
rat	GTCCCCAACATCAAAGGAATGATTTCAGCTGATTGGCATCCAGGATGGGTACCTATCC					
	:::::::::::::::: :::::::::: ::					
mouse	GTCCCCAACATCAAACGGAATGACTTCAGCTGATTGGCATCCAGGATGGGTACCTATCC					
	250	260	270	280	290	300
	310	320	330	340	350	360
rat	CTGCTCCAGGACAGTGGGGAGGTACGAGAGGACCTTCGTCTGCCTGAGGGAGACCTTGGC					
	::					
mouse	CTGCTCCAGGACAGTGGGGAGGTACGAGAGGACCTTCGTCTGCCTGAAGGAGACCTTGGC					
	310	320	330	340	350	360
	370	380	390	400	410	420
rat	AAGGAGATTGAGCAGAAGTATGACTGTGGAGAAGAGATCCTGATCACAGTGCTGTCCGCC					
	::					
mouse	AAGGAGATTGAGCAGAAGTATGACTGTGGAGAAGAGATCCTGATCACAGTGCTGTCTGCC					
	370	380	390	400	410	420
	430	440	450	460		
rat	ATGACAGAGGAGGAGCTGTTGCAATCAAGGCCATGGCAAAA					
	::					
mouse	ATGACAGAGGAGGAGCTGTTGCAATCAAGGCCATGGCAAAA					
	430	440	450	460		

Figure 8



rat vs. human(BC000751 or NM\_001970) 100.0% identity

	10	20	30	40	50	60
rat	MADDLDFETGDAGASATFPMQCSALRKNGFVVLKGRPCKIVEMSTSKTGKKGHAKVHLVG					
	.....					
human	MADDLDFETGDAGASATFPMQCSALRKNGFVVLKGRPCKIVEMSTSKTGKKGHAKVHLVG					
	10	20	30	40	50	60
	70	80	90	100	110	120
rat	IDIFTGKKYEDICPSTHNMDVPNIKRNDFQLIGIQDGYLSLLQDSGEVREDLRLPEGDLG					
	.....					
human	IDIFTGKKYEDICPSTHNMDVPNIKRNDFQLIGIQDGYLSLLQDSGEVREDLRLPEGDLG					
	70	80	90	100	110	120
	130	140	150			
rat	KEIEQKYDCGEEILITVLSAMTEEA A VAIKAMAK					
	.....					
human	KEIEQKYDCGEEILITVLSAMTEEA A VAIKAMAK					
	130	140	150			

Figure 9

rat vs. human(NM\_020390) 82.5% identity

```

      10      20      30      40      50      60
rat   MADDLDFETGDAGASATFPMQCSALRKNGFVVLKGRPCKIVEMSTSKTGKHGHAKVHLVG
      .....
human MADEIDFTTGDAGASSTYPMQCSALRKNGFVVLKGRPCKIVEMSTSKTGKHGHAKVHLVG
      10      20      30      40      50      60

      70      80      90     100     110     120
rat   IDIFTGKKYEDICPSTHNMDVPNIKRNDFQLIGIQDGYLSLLQDSGEVREDLRLPEGDLG
      .....
human IDIFTGKKYEDICPSTHNMDVPNIKRNDYQLICIQDGYLSLLTETGEVREDLKLPEGELG
      70      80      90     100     110     120

      130     140     150
rat   KEIEQKYDCGEEILITVLSAMTEEA AVAIKAMAK
      ....
human KEIEGKYNAGEDVQVSVMCAMSEEYAVA IKP-CK
      130     140     150
```

Figure 10

rat vs. mouse (BC003889)100.0% identity

	10	20	30	40	50	60
rat	MADDLDFETGDAGASATFPMQCSALRKNGFVVLKGRPCKIVEMSTSKTGKHGHAKVHLVG					
	:	:	:	:	:	:
mouse	MADDLDFETGDAGASATFPMQCSALRKNGFVVLKGRPCKIVEMSTSKTGKHGHAKVHLVG					
	10	20	30	40	50	60
	70	80	90	100	110	120
rat	IDIFTGKKYEDICPSTHNMDVPNIKRNDFQLIGIQDGYLSLLQDSGEVREDLRLPEGDLG					
	:	:	:	:	:	:
mouse	IDIFTGKKYEDICPSTHNMDVPNIKRNDFQLIGIQDGYLSLLQDSGEVREDLRLPEGDLG					
	70	80	90	100	110	120
	130	140	150			
rat	KEIEQKYDCGEEILITVLSAMTEEA AVAIKAMAK					
	:	:	:	:	:	:
mouse	KEIEQKYDCGEEILITVLSAMTEEA AVAIKAMAK					
	130	140	150			

Figure 11

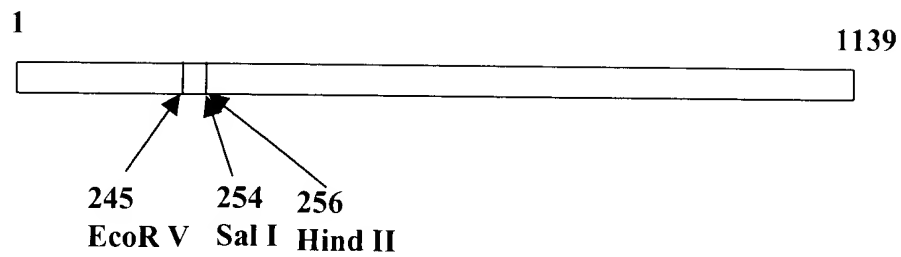
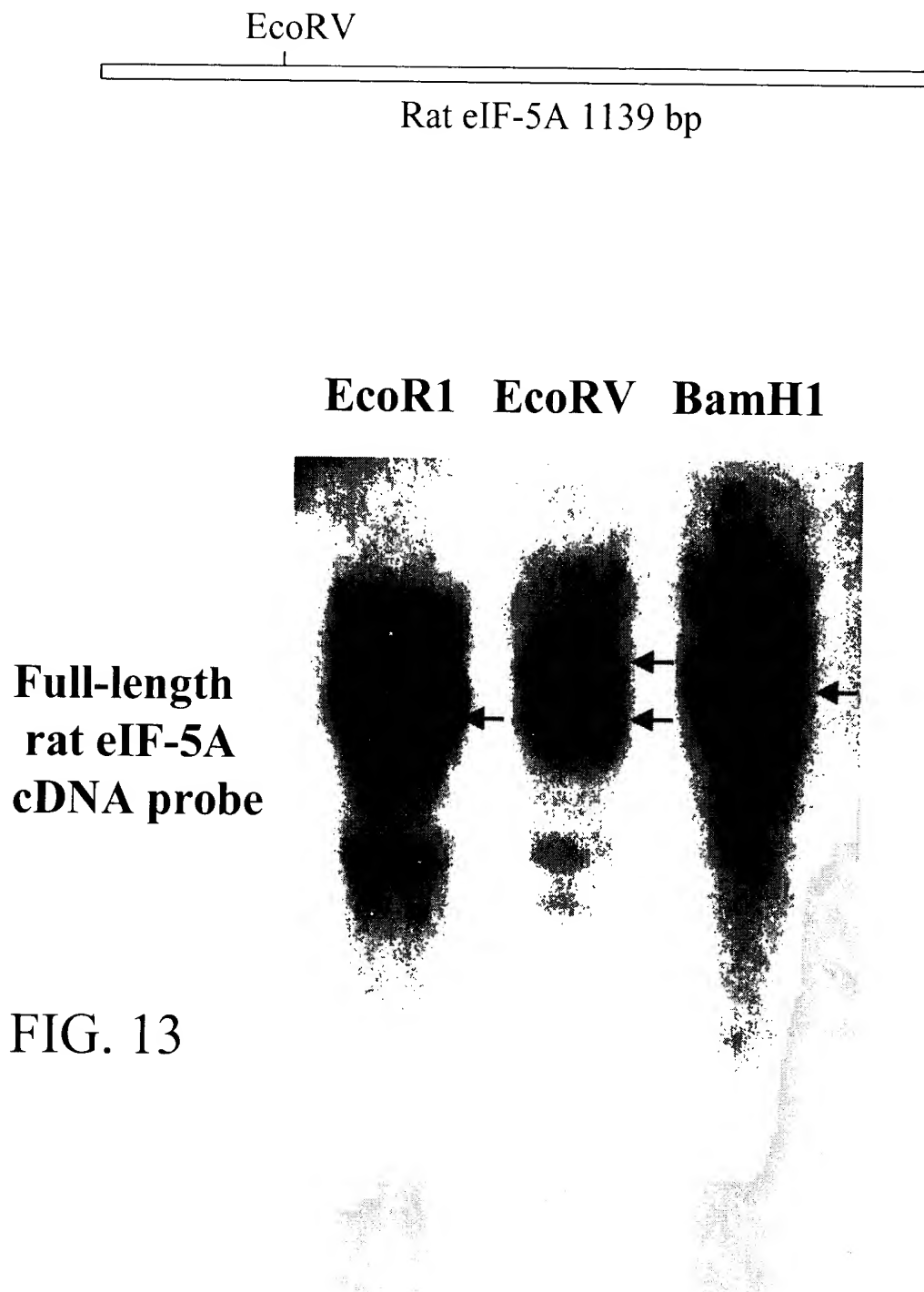


Figure 12

## Southern Blot of Rat Genomic DNA



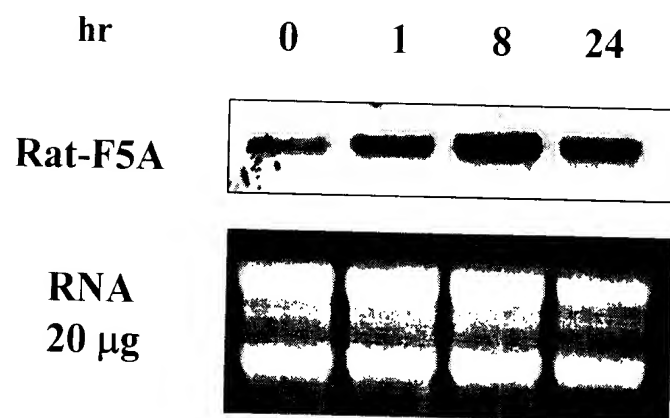
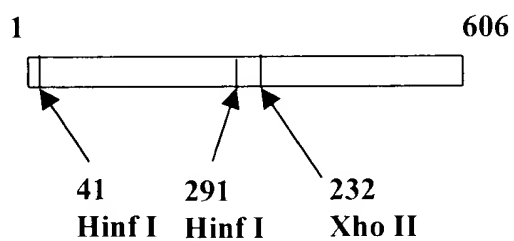


Figure 14

GCTGTGTATTATTGGGCCCATAAGAACCACATACCTGTGCTGAGTCCTGCACTCACAGACGGCTCACTGGGT  
A V Y Y W A H K N H I P V L S P A L T D G S L G  
GACATGATCTTTTTCCATTCTATAAAAAACCCAGGCTTGGTCCTGGACATCGTTGAAGACCTGCGGCTCATC  
D M I F F H S Y K N P G L V L D I V E D L R L I  
AACATGCAGGCCATTTTCGCCAAGCGCACTGGGATGATCATCTGGGTGGAGGCGTGGTCAAGCACCACATC  
N M Q A I F A K R T G M I I L G G G V V K H H I  
GCCAATGCTAACCTCATGCGGAATGGAGCTGACTACGCTGTTTATATCAACACAGCCCAGGAGTTTGATGGC  
A N A N L M R N G A D Y A V Y I N T A Q E F D G  
TCAGACTCAGGAGCCCGCCAGATGAGGCTGTCTCCTGGGGCAAGATCCGGATGGATGCACAGCCAGTAAAG  
S D S G A R P D E A V S W G K I R M D A Q P V K  
GTCTATGCTGATGCATCTCTGGTTTTCCCCTTGCTGGTGGCTGAGACATTCGCCCCAAAAGGCAGATGCCTTC  
V Y A D A S L V F P L L V A E T F A Q K A D A F  
AGAGCTGAGAAGAATGAGGACTGAGCAGATGGGTAAAGACGGAGGCTTCTGCCACACCTTTATTTATTATTT  
R A E K N E D  
GCATACCAACCCCTCCTGGGCCCTCTCCTTGGTCAGCAGCATCTTGAGAATAAATGGCCTTTTTTGTGGTTT  
CTGTAAAAAAGGACTTTAAAAA

(606 NT, 151 aa)

Figure 15



**Figure 16**



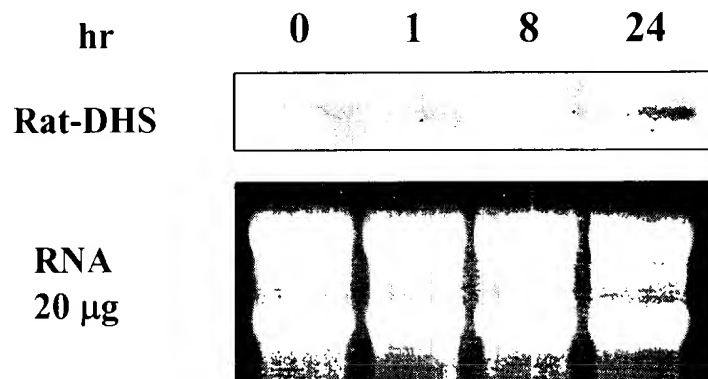


Figure 17

rat vs. human (BC000333) 87.4% identity (coding)

```

      10      20      30      40      50      60
rat   GCTGTGTATTATTGGGCCCATAAGAACCACATACCTGTGCTGAGTCCTGCACTCACAGAC
      : : : : : : : : : : : : : : : : : : : : : : : : : : : :
human TCCGTGTATTACTGGGCCCAGAAGAACCACATCCCTGTGTTTAGTCCCGCACTTACAGAC
      10      20      30      40      50      60

      70      80      90     100     110     120
rat   GGCTCACTGGGTGACATGATCTTTTCCATTCTTATAAAAACCCAGGCTTGGTCCTGGAC
      : : : : : : : : : : : : : : : : : : : : : : : : : : : :
human GGCTCGCTGGGCGACATGATCTTCTTCCATTCTTACAAGAACCCGGGCCTGGTCCTGGAC
      70      80      90     100     110     120

      130     140     150     160     170     180
rat   ATCGTTGAAGACCTGCGGCTCATCAACATGCAGGCCATTTTCGCCAAGCGCACTGGGATG
      : : : : : : : : : : : : : : : : : : : : : : : : : : : :
human ATCGTTGAGGACCTGAGGCTCATCAACACACAGGCCATCTTTGCCAAGTGCCTGGGATG
      130     140     150     160     170     180

      190     200     210     220     230     240
rat   ATCATCTCTGGGTGGAGGCGTGGTCAAGCACCACATCGCCAATGCTAACCTCATGCGGAAT
      : : : : : : : : : : : : : : : : : : : : : : : : : : : :
human ATCATTCTGGGCGGGGCGTGGTCAAGCACCACATTGCCAATGCCAACCTCATGCGGAAC
      190     200     210     220     230     240

      250     260     270     280     290     300
rat   GGAGCTGACTACGCTGTTTATATCAACACAGCCCAGGAGTTTGATGGCTCAGACTCAGGA
      : : : : : : : : : : : : : : : : : : : : : : : : : : : :
human GGGGCCGACTACGCTGTTTACATCAACACAGCCCAGGAGTTTGATGGCTCTGACTCAGGT
      250     260     270     280     290     300

      310     320     330     340     350     360
rat   GCCCGGCCAGATGAGGCTGTCTCTCTGGGGCAAGATCCGGATGGATGCACAGCCAGTAAAG
      : : : : : : : : : : : : : : : : : : : : : : : : : : : :
human GCCCGACCAGACGAGGCTGTCTCTCTGGGGCAAGATCCGGGTGGATGCACAGCCCGTCAAG
      310     320     330     340     350     360

      370     380     390     400     410     420
rat   GTCTATGCTGATGCATCTCTGGTTCCTCCCTTGCTGGTGGCTGAGACATTGCCCCAAAG
      : : : : : : : : : : : : : : : : : : : : : : : : : : : :
human GTCTATGCTGACGCTCCCTGGTCTTCCCCCTGCTTGTGGCTGAAACCTTTGCCAGAAG
      370     380     390     400     410     420

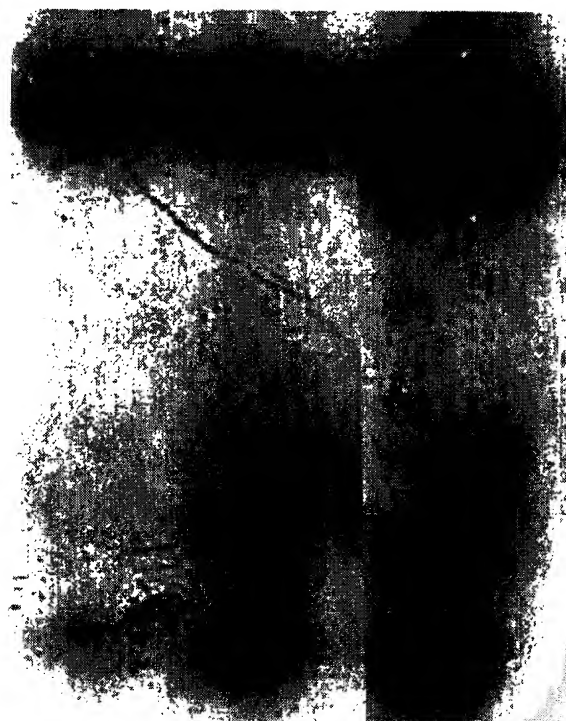
      430     440     450
rat   GCAGATGCCTTCAGAGCTGAGAAGAATGAGGAC
      : : : : : : : : : : : : : : : : : : : : : : : : : : : :
human ATGGATGCCTTCATGCATGAGAAGAACGAGGAC
      430     440     450
```

Figure 18

FIG. 19

Hours After PGF-2 $\alpha$  Treatment

0            1            24



Saline - 3 hours *in vitro*  
PGF-2 $\alpha$  - 3 hours *in vitro*  
PGF-2 $\alpha$  - 6 hours *in vitro*



**Figure 20**

**FIG. 21**

**Southern Blot of Rat Genomic DNA**

**EcoRV**

**Partial rat DHS  
cDNA probe**

